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New York State Teachers' Association.

REPORT

OF THE COMMITTEE APPOINTED ON

V MRS. WILLARD'S THEORY OF RESPIRATION.

BY THE

N. Y. STATE TEACHERS' ASSOCIATION.

READ AND ACCEPTED AT THEIR CONVENTION AT BUFFALO,
August 7, 1851.

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ALBANY:

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REPORT.

THE Committee appointed to report to the New York State Teachers' Association, on the Theory of Respiration, by Mrs. EMMA WILLARD, beg leave to state that they believe the Theory to be TRUE.

1. Because the arguments being clearly stated by that author, and founded on known and uncontrovertible laws, lead by a few steps to the logical conclusion that the principal motive power which produces the circulation of the blood, is furnished by the caloric, generated by respiration ; operating in one part of a circulating system, viz : the lungs, which has its opposite or exterior, where the heat is abstracted by coming under the cooling influence of atmospheric air, and is taken off by vaporization.

2. In support of this Theory, we find a great number of facts ; and none to disagree with it.

3. We have found in a medical work of high authority, an elaborate attempt to answer the Theory, on the principles of physical science, which, in our opinion, is a total failure.*

4. We find our opinion upheld by some of the first minds of the community, not excepting some of the Medical Faculty.

* The "New York Medical Journal," Sept., 1846. Replied to by Mrs. Willard in the same journal, March, 1847.

5. And finally—the Theory has been most signally upheld by the proof *à posteriori*, furnished by operations, which resulted in the immediate cure of the Cholera, as related in a work entitled “Respiration and its Effects, more especially in relation to Asiatic Cholera and other Sinking Diseases.”*

This theory affirms that the motive power, which causes the circulation of the blood, is created by an expansion of the volume of the blood in the lungs, produced by the combustion of the carbon of the venous blood, caused by the oxygen of the air, introduced by breathing.

This theory affirms, further, as a general principle, that if a fluid is contained in a system of vessels, as, for example, the blood in the circulatory system of animals, if heat be applied to one portion of this system, and the fluid be carried from the heated part and elsewhere condensed, and thence return to be again heated, then will this alternate expansion and condensation produce a perpetual circulation.

Yet while it maintains that respiration furnishes the principal motive power, it shows that the action of the heart is necessary to open and close the valves of the blood vessels in order to render the expansion available to carry on circulation in certain positions; also that circulation is assisted by exercise, and by other aids.

That animal heat is caused by a combustion in the animal system, furnished constantly with oxygen from the air inhaled, was first taught by Lavoisier, and is so fully established by Liebig, that it seems to be no longer a contested point.

* A copy of this work, which was published in the autumn of 1849, was by Mrs. Willard presented to each of the members of the N. Y. State Teachers' Association, during their convention in the city of New York in the summer of 1850, with a request, to which the society acceded, that a committee be appointed to investigate the theory, and report concerning its truth.

Mrs. Willard's previous work, “On the Motive Powers which produce the Circulation of the Blood,” has for its object to show that the principal motive power is furnished by respiration.

Heat causes expansion, and it also converts the watery particles of the blood into vapor, or steam, when the pressure of the air is removed, wholly or in part.

That the lungs contain vapor, appears from the fact that they collapse whenever air is admitted to their external surface. This vapor must have been formed in the lungs, and not elsewhere; it in part fills and distends them.

The lungs being partially free from atmospheric pressure,* the degree of heat necessary to convert the watery part of the blood into vapor, is less than the mean temperature of the blood, or below 98°. Water in vacuo is converted into vapor at 67°. Hence, if this animal heat is sufficient to convert water into vapor, then there is a motive power sufficient to cause a circulation of the blood. The action of the heart gives a pulsatory motion to the current thus formed, adds some force, and equalizes its flow.

The following facts are from John Bell's Anatomy and Physiology. See vol. 1, page 350:—"GALEN called the right auricle the *ultimum moriens*, or the part which died last, for upon opening the body, soon after death, he found the right auricle filled with blood, and still palpitating with the remains of life, when all the other parts seemed absolutely dead." The cause of this accumulation of blood on the right side of the heart seemed to have employed the thoughts of HALLER during half of his life. He says "that when the lungs are collapsed, no blood can pass through them; but it must accumulate on the right side of the heart."

Bell himself asserts, that in this case "the right auricle has behind it all the blood of the body pouring in from all parts, during the last struggles, but the left auricle has nothing behind it but the *empty* veins of the lungs," i. e. the pulmonary veins. "Nothing can fill them but what fills the vessels of the lungs."

* The opponent of the theory, in the New York Medical Journal, admits the fact of a partial vacuum in the lungs. See the "New York Journal of Medicine," September, 1846.

Facts which agree with the Theory of Circulation by Respiration.

1. A system of blood vessels exists, through which a mass of inert blood, equal to twenty-five or thirty pounds weight, in a full grown human subject, is perpetually circulating. It is contrary to the laws of physics that inertia should be overcome without force. There must, therefore, in this circle of circulation, be one power, or more. Where is the principal power? In order to find its place, let the machine stop, by the power ceasing to act. The fluid will move onward by its last impulses, and leave a void in front of the power; it will go on to the rear, and there be congested; and hence the vessels leading to it will be full and distended, while those leading from it are empty.* Death is the stopping of the animal machine. At death the blood stops in the lower capillaries of the lungs, just where it would stop provided Mrs. Willard's theory were true; and this great fact not only agrees to the truth of the theory, but it contradicts any other hypothesis. For, if the principal motive power were in the heart, then at death the tubes conducting from the lungs to the left ventricle of the heart, being in the rear of the power, would be engorged—but on the contrary, they are found empty. The principal motive power, proceeds then, not from the heart, but from the capillaries of the lungs.

2. Suppose such a system of blood vessels filled with the usual quantity of blood, and suppose that the circulation stops, the organs being yet unimpaired, and the problem is to find means to set the current in motion. If there be found one power, operating only in a particular place, and that alone will set the current in motion, then is it logical to conclude that that is the principal motive power, and it is needless to look for any other. In such a case in the animal system, *restored respiration*, (it may at first be artificial,) operating of

* See the extract, just inserted, from John Bell.

course at the lungs, sometimes sets the current into renewed motion ; and nothing else has ever been known to do it. Therefore, respiration, operating at the lungs, to send forward a stream of warm blood, (through what was before an empty tube, the pulmonary vein, so called,) which touches and excites the heart to renewed contractility, is the true motive power of the circulation, and this is precisely what is taught in Mrs. Willard's Theory of Respiration.

The fact that resuscitation after drowning, stifling with carbonic acid gas, as in fumes of charcoal, is produced, if at all, by forcing air into the lungs, is too well known to need proof from authority. But there is much of this at hand. John Bell, vol. 1, p. 382, says :—"The heart of a creature never moves if its lungs lie collapsed ; but the heart returns to act, the very instant that pure air is forced into the lungs."

3. On the hypothesis that the combustion of carbon in the lungs, creating there an expansive power, is the cause of the circulation, then must there be a constant supply of that fuel brought to the right place. If the all-wise Maker of the human machine has provided for such a constant supply, and put it in the right place to receive the action of the air, where life enkindles, and oxygen comes, then this proves the hypothesis to be a true theory of respiration. These facts are signally true. The All-wise has created food and given appetite, leading animals by pleasure, and compelling them by excruciating pain to provide, and eat such food, as will form carbon, which is properly concocted, and thence received into the lungs ; and if any thing hinders this, the machine stops for want of fuel, i. e. death ensues.

4. If the motive power operates by water, springing into vapor in the lungs, then the Maker of the machine must make provision for a constant supply of water, or the machine will stop. The Almighty has created water to fill more space on the earth than aught else, except air, and he compels animals to drink it, by the pleasure which they take in the cooling beverage, and by the horrible pains of thirst, if they do not

drink ; and if water be not supplied, then the machine stops for the want of motive power.

5. Again, how is it in respect to the supply of air, which on this theory must be momentary ? Air is the fluid which God has made to surround us, and He has made it with such properties, that by no natural means can it be kept from us. The instinct of breathing is the first and strongest of all our instincts. He has so made the body that the animal bellows must work, whether with or against our will. We may work it faster or slower for a little time, controlling it within certain limits, but we cannot hinder breathing, by which we momentarily renew the supply of air. If by the violent closing of the aperture by which air enters the lungs, as by hanging, then the machine stops for want of motive power, no matter how healthy and how perfect is the heart and all the blood vessels. These classes of facts each prove that the hypothesis advocated is a true theory—much more the agreement of all.

6. If the circulation in the animal machine is carried on as this theory assumes, then there must be a nice adaptation of the external coldness of the capillaries of the system with the internal heat generated in the lungs ; otherwise the whole mass might come to receive the same temperature, and this, no matter what the temperature was, would stop the machine. If the Creator has made provision for this adaptation, that will be an additional argument to prove the theory, and if no such provision was made, the want of it perpetually subjecting the machine to the failure of the circulation, would disprove the theory. Here again we have the instinct and the supply. The subject has a feeling of comfortable warmth when the external temperature properly balances the internal ; but an *instinct of coldness* which obliges him to seek clothing and shelter, when the proper balance requires it. These instincts make it a necessity for man to procure clothing, houses, and especially beds to lie in when he sleeps, when breathing being slow, internal heat diminishes. The effect of climate, as in the colder regions, where air is more condensed, giving

external coldness, at the same time that it kindles more intensely the internal fire. The food—fuel provided being animal, with much carbon in cold countries, and fruits with little carbon in hot, all show that the Creator has made not only man, but the external world, for just such a state of things as this theory supposes.

Thus we have abundantly shown that not only isolated facts, but great classes of facts, agree to the truth of this theory, many of which exclude any other hypothesis concerning the motive power which produces the circulation of the blood than that it is produced by an expansive power, operating at the lungs, and generated by respiration.

The Committee beg leave to lay before the Association extracts of letters from eminent persons, (the originals of which were in their possession,) showing in what light this theory of respiration is viewed by those who have had the time to examine it with care and attention.

With regard, also, to the cure of cases of cholera, the Committee had in their possession the original letters and papers published in Mrs. WILLARD'S Theory, and also others not published, and the statement of persons of character, known to the Committee or some of them, who had been present with the persons attacked, or heard them assert that they had been attacked with cholera, and following the methods pointed out by Mrs. WILLARD, had been instantly relieved.

The committee would suggest that the Association memorialize the Legislature, requesting a commission to be appointed to examine, experiment and report; which commission shall be in part members of the medical faculty, and in part scientific persons, not of that faculty.

This theory, if true, is of the utmost importance to man's physical well-being. Let it then be acknowledged, received and taught, instead of the errors which are now in our schools on this important subject. The Medical Faculty have, it appears to us, shown some prejudice, by leaving a subject of so much interest to the millions, comparatively speaking, un-

noticed. It promises, if true, to teach people to preserve their health, and in important cases to restore it without medical aid.

The discovery, if it be a discovery, is a great one. It originated not among doctors, but teachers—and with a female teacher, too. From all these circumstances, we recommend that the Association agree on a petition to the Legislature, in order to draw out, if any exist, latent objections; and not to leave so valuable an acquisition to human knowledge, to the mercy of those whose prejudices of sex and profession might mislead their judgment.

THOMAS S. TWISS,
JOSEPH FELLOWS,
Committee.



From the numerous documents subjected to their inspection, the Committee select, to lay before the Association, the following:

EXTRACT OF A COMMUNICATION FROM THE WELL KNOWN
DR. R. J. BRECKENRIDGE, NOW SUPERINTENDENT OF SCHOOLS
IN KENTUCKY, TO MRS. WILLARD.

Dr. R. J. BRECKENRIDGE presents his respectful salutations to Mrs. WILLARD, and returns his sincere thanks for the copy of her very interesting work on the circulation of the blood, which he received some weeks ago, just on the eve of removing from Pennsylvania, and which he has availed himself of the earliest leisure to read with great attention. * * * *
And he must say that the theory of Mrs. WILLARD seems to him eminently ingenious, and, to say the least, full of probability; and that it is exhibited in her little work with great clearness and ability.

EXTRACT OF A LETTER FROM THE HON. JOHN WILLARD, JUDGE
OF THE SUPREME COURT, TO MRS. EMMA WILLARD, DATED
SARATOGA SPRINGS, JANUARY 17, 1850.

Your letter, with your valuable pamphlet on "Respiration and its Effects," came during my absence.

I carefully read the pamphlet, at my earliest leisure, and was struck with the originality and soundness of your theory, and of the train of reasoning by which it is supported. Its failure to command universal assent, *at once*, if such should be the case, will afford no argument against it. It would be strange if it did not meet with some opposition. It has to encounter the prejudices of early education, and the influence of professional pride. No discovery leading to essential changes in medical practice has ever been received without distrust. It requires time to enable the general mind to be imbued with new truths, and perhaps it is best that it is so. The delay leads to the multiplication of new facts, affording scope for a more extensive generalization, and thus strengthening the arguments by which the doctrine is supported.

EXTRACT OF A LETTER FROM PROFESSOR BURLEIGH, OF
WASHINGTON, D. C., DATED OCTOBER 2, 1850.

Mrs. Willard—* * * * * I read with great profit your remarks upon the Asiatic cholera. It appears to me that your views are correct. I intend to call the special attention of the Faculty of our Medical College to your theory.

I am fully convinced that thousands annually go down to the grave for the want of a knowledge of *Æropathy*. My impression is, that your "pathy" will eventually supersede every other pathy, and that the time will come when the medical profession will acknowledge the truth, even if it is first promulgated by those out of the medical profession.

EXTRACT OF A LETTER FROM DR. DANIEL GREGORY, OF BOSTON,
TO MRS. EMMA WILLARD, DATED JULY 22, 1851.

Dr. Gregory, after desiring Mrs. Willard's approbation to a Society for Medical Female Education, says—this is more especially—"from the fact of your having investigated and written upon the human organization; I have read your treatise on the circulation of the Blood, and think it not only exceedingly interesting as elucidating very satisfactorily the motive powers of the circulation, but deem it of great practical utility in the preservation of health."

EXTRACT OF A LETTER TO MRS. EMMA WILLARD FROM DR.
CHARLES A. LEE, DATED NEW YORK, MARCH 29, 1847.

Dr. Lee was at that time editor of the N. Y. Medical Journal, in which appeared the articles against Mrs. Willard's Theory, referred to in the Report which was published September, 1846. The article referred to in Dr. Lee's letter was the Reply of Mrs. Willard, contained in the N. Y. Journal of Medicine, March, 1847.

Dear Madam—On my return to the city, after an absence of a few weeks, I found your article, &c. If there are any errata of consequence they may be pointed out in my next number. I consider your reply extremely able and well reasoned, and calculated to stagger the faith of some who have hitherto slighted your Theory. With many thanks for your favor, &c.

LETTER FROM DR. RICHARD BLOSS, A REGULARLY EDUCATED
PHYSICIAN, TO MRS. EMMA WILLARD.

Troy, December 4, 1849.

Dear Mrs. Willard—In relation to the case of Mrs. G., mentioned in the fourth section of your treatise on "Respiration and its Effects," I presume her symptoms, as related by you, and described in her letter to yourself, are correct, and such as might have been expected from her appearance in the morning, when I saw her.

She was then languid and prostrated, from a debilitating diarrhœa, which had followed her through the night, her pulse feeble, with a pallid countenance, and I was not surprised at being called to visit her in haste in the evening, nor to hear from the messenger that she was sinking with cholera—but was agreeably surprised, on arriving, to witness the improvement which appeared in her symptoms, even from what they were in the morning. She was sitting upright in the bed, facing the open window, and covered with a profuse perspiration, her countenance flushed, and her eyes brilliant, and to my inquiry how she was, answered in a clear, strong voice, and with cheerful manner, "Much better than I have been." On applying my fingers to her wrist, I found a strong, distinct pulse, and my first impression was, that she had been taking some diffusible stimulant, so entirely had her appearance changed. But on inquiring of herself and the family where she was staying, what were her symptoms when you arrived, and learning that she had loss of voice, extreme prostration, livid countenance, and all those symptoms which characterise cholera, and comparing these with the condition in which I

found her, and knowing the process which she had gone through, I could not but attribute her great and sudden improvement to the effect of strong artificial respiration.

Very respectfully yours, RICHARD BLOSS.

COPY OF A LETTER TO MRS. EMMA WILLARD FROM MR. J. W. HOWARD, OF NEW YORK, NOW A MEMBER OF THE RENSELAER INSTITUTE IN TROY, TESTIFYING TO HIS CURE OF CHOLERA BY APPLYING HER PRINCIPLES TO PRACTICE.

Madam—In conformity with your request, I will endeavor to give you a brief account of a severe illness, which I was called upon to endure during this last summer, and which might have hurried me to an early grave, had it not been for the excellent advice obtained by reading your valuable treatise on Respiration. I would not trouble you with this account did I not know the labor you have undergone in endeavoring to place this subject in its proper light before the public.

It was about the middle of August, 1850, that I was seized with a severe diarrhœa. I tried the usual remedies and succeeded in partially checking it, so much so, that I did not refuse myself the gratification of a cold bath upon retiring for the night. After going to bed I felt extremely cold and endeavored, by shifting my position, to regain the natural stimulus, at the same time feeling a strange distress at the pit of my stomach and an excruciating pain in my bowels—I might almost say agony—and I was about getting up for the purpose of calling assistance, when I bethought me of Mrs. Willard's plan, as I called it, and with little expectation of success, I must acknowledge, I arose and went to the window, and by a succession of violent artificial breathings and severe exercise of my arms, throwing back my chest and bringing into action all the muscles of the upper part of my body. I succeeded in obtaining a rapid circulation of the blood, and upon regaining my bed I wrapt my bed clothes around me and soon fell into a profuse perspiration. Shortly after I fell asleep and awoke in the morning refreshed by the sweet slumbers of the night and cured, no doubt of cholera. If this statement can be of any use to you you are at liberty to use it, as may seem to you best. With heartfelt gratitude for your timely instruction,

I remain, yours most respectfully,

J. W. HOWARD, New York.

Troy, Dec. 12, 1850.

Mrs. EMMA WILLARD, Present.

[FROM THE NEW YORK TRIBUNE.]

"RESPIRATION"—THE CHOLERA.

We opened this fair pamphlet with slender hopes of edification from its perusal, for while we were not wholly ignorant of Mrs. Willard's fame as a teacher, we were not before aware that the healing art was within the range of her inculcations. Her former work announced on the title page of this—"A Treatise on the Motive Powers which produce the Circulation of the Blood," never having attracted our attention. But the scepticism with which we commenced, speedily gave place to curiosity, and this to interest, which in time deepened into conviction that an important discovery had been made, which was here given to the world. Let us endeavor to give the reader some notion of Mrs. Willard's theory, so far as a single perusal of her pamphlet and the limits of a brief article enable us to do it.

Respiration (she holds) is the primary cause of the Circulation of the Blood. The action of the heart no more causes circulation than the action of the piston creates the motive power of the steam-engine. But Respiration, introducing Oxygen into the lungs, brings it in contact with the Carbon of the blood, producing a modified combustion, of which the action of the heart and the circulation of the blood are effects. A certain degree of heat is essential to the integrity of the blood and the action of the lungs. That heat failing, the fibrin of the blood separates from the serum, as may be seen by experiment. The lungs, no longer inflated by the steam or vapor created by the process of combustion, collapse; breathing ceases and death ensues. A reduction of the temperature of the heart and lungs is therefore certain, unless counteracted and overcome, to result in death.

How the special cholera miasm is produced, or why cholera prevailed here in 1849 and not in '48, we do not understand Mrs. Willard as attempting to show. But the earlier stages of the disease are indicated by languor, feeble or difficult respiration, coldness, oppression at the chest and general debility, and these too often pass unregarded. Nature soon recognizes the presence of a deadly foe, and rallies her forces for a desperate struggle. Her spasmodic exertions and discharges are not truly the disease, but her efforts to master it. The fundamental difficulty is a disorder, prostration and partial paralysis of the organs of respiration, whereby the lungs become at first partially and as it proceeds wholly filled with carbonic acid gas, to the exclusion of freshly inhaled or oxygenated air, so that the blood ceases to be oxygenated on its exposure at the lungs, and the process of combustion is suspended or stifled, like the fire smothered beneath its own ashes. This is cholera, and at length collapse. What is to be done to counteract it is not to fill the stomach with drugs, or empirical mixtures, or anything else—though some medicines may indirectly aid in effecting the needed reaction—but to *expel the bad air from the lungs and replace it by good*. In other words, the carbonic acid or other poisonous gas must be expired and a full supply of fresh, pure, invigorating, wholesome air inhaled in its stead, until the combustion at the lungs is fully re-established, the blood restored to rapid and vigorous circulation, and the rekindling of the vital flame is evinced (as it will be) by flushed features and a profuse perspiration. In case of a tendency to relapse, this counteraction is to be repeated. The following is Mrs. Willard's account of the application of her theory, in the case of a young woman who, after four day's suffering from diarrhœa, was stricken down, during the late cholera season, by collapse, and nearly deprived of speech, sense, and voluntary motion:

"So benumbed was she, that, as she moved, or rather was moved along, she did not feel her feet touch the floor or the stairs. She was, when in the open air, placed in an upright position, with her back resting against a board wall, a fresh breeze blowing full in her face. I then told her to breathe violently, *for she must get the bad air out of her lungs, and the good air in*. At first she said, 'I can't; something rises up on the inside.' I told her that her life depended on it, and she must. She then made violent efforts. Being accustomed to teach, I succeeded, after earnest endeavors, in showing her what I would have her do.

"My directions" were, that she would draw her arms down, to aid the motion of the ribs in compressing the chest; and for the same object to bend forward, curving the spine between and just below the shoulders; and throw out the air from the bottom of the lungs with violence and with successive ejections, as if under the operation of an emetic. Having done this, to stand upright, raise the arms from the shoulders, resting the hands upon the hips, so as to give the chest its utmost capacity; and to catch in the breath several times successively with violence, as if cold water were thrown in the face; and to continue inhaling, until she had filled her lungs to their utmost distension; then, as before, to throw out the air from their lower parts with force. She said, 'It makes my head feel dreadfully.' 'No matter,' said I, 'it is a good sign; I expected it.' In a few minutes after the deep breathing was fairly established—perhaps I might say as soon—and while I was watching with intense anxiety the patient's face, the color changed from the 'clay-cold death-look' to the full flush of the warm hue of life. Never did I witness any sight with emotions so intense. A sign in the heavens, portending good, could not have affected me more."

"The deep breathing, being several times resumed after the struggles, soon confirmed a free circulation, and she could walk unsupported. She joyfully exclaimed, 'O, I feel well!' And she added, 'I should soon have died if you had not come to me; every thing was all dark to me. I thank you.' 'Thank God,' said I, 'it is His air which has cured you.' In about an hour after, I sent her to walk to the next street, to see Dr. Robbins, to tell her own story, and get some medicine, of which her previous complaints indicated the necessity."

"This was, it is true, a sudden restoration. So was the attack; and if death from cholera had been sudden, who would have wondered? Had she been struggling with the pangs of drowning, she might have been as suddenly relieved. If carbonic acid was in her lungs, and restoration occurred by throwing it out, the relief would, of course, be immediate. If you have an inflammation in your finger, and poultice it, restoration will be slow: but, if you find and pull out a sliver, the finger will be fit for use at once."

There are several other cases like this, and the author's theory is stated far more fully and clearly by herself than by us, but, as our purpose is not to supersede, but to call attention to the pamphlet, we refer the reader whose interest has been awakened, to Mrs. Willard's own exposition. We shall undoubtedly have the cholera back again next season, and the public cannot be too well guarded against its sudden attacks. Here is a remedy which asks nothing of the apothecary, which any one can take or administer, and which can hardly by possibility do harm, except in cases of inflammatory disease, in which it must not be resorted to. Let no one, when attacked, neglect or delay sending for a good physician, but that need not interfere with the thorough ventilation of the lungs. We trust the Medical Faculty, or at least some part of it, will not disdain to profit by a woman's observations, if they have resulted in the discovery of important truth.—H. GREELY.

[FROM THE NEW YORK ADVOCATE AND FAMILY GUARDIAN.]

January 5, 1850.

"RESPIRATION AND ITS EFFECTS; more especially in relation to Asiatic Cholera, and other sinking diseases. By EMMA WILLARD, Author of "A Treatise on the Motive Powers which Produce the Circulation of the Blood," and various Historical and Educational Works. New York: Huntington & Savage, 216 Pearl street." Price 25 cents.

We have read this work with the deepest interest, and unhesitatingly commend it to the careful perusal of our friends and patrons. The subject of

* Those I describe with particularity, because others may hereafter wish to follow them. But I warn any one against it, unless confident that his disease is one in which coldness and obstructed circulation prevail. If he should do the same thing in an inflammatory disease, it would injure him. But if any one feels himself sinking with coldness and debility—if he has breathed the fumes of charcoal, or is freezing with a chill which is creeping on his vitals, and inducing him to drowse; or, if the coldness of cholera comes over him, let him arouse, he has not a moment to lose, and if he has, beforehand, learned what was done at this time, let him go and do likewise.

which it treats is one of vital importance, and, so far as we can judge, is handled with intelligence and skill. It appears to us that the theory here advanced commends itself to the plain common sense of the people, and that the facts adduced in its support will be found "stubborn things" by the opponents of this theory.

We live in an age which, while it awards high respect to the medical profession, is slow to believe that any one of the existing schools has reached the pinnacle of human knowledge in the "healing art," and slow to award to any the claim to infallibility. If new light, of an important type, has been obtained relative to the laws of life and health, who shall refuse to receive it because the channel of communication has been the female mind, instead of some popular school of medical science? The simple question should be, "*What is truth?*" and when a visitation like the cholera is abroad in the earth, though it may, for an uncertain period, have suspended its ravages, it surely becomes those who are exposed to its attacks to

"Seize upon TRUTH where'er 'tis found,
Among their friends—among their foes."

If what is advanced in Mrs. W.'s new work be correct, then a great *truth* is discovered, the right understanding of which may save life, even when its dim taper barely flickers in the socket, and that by the most simple and available means. We could wish this little work in every family on the broad earth, where cholera has ever been, or may yet be, an unwelcome visitant. Its perusal can do no harm, and may do immense good.

[FROM THE LONDON CRITIC.]

A Treatise on the Motive Powers which Produce the Circulation of the Blood. By E. MA WILLARD. 8vo. London and New York, 1846. Wiley & Putnam.

Proportionate to the degrees of refinement which severally characterized the nations of whom history has taken note, the enfranchisement of the faculties of woman, and her consequent elevation in the social scheme has steadily kept pace. And it is a feature most honorable to the present age, that throughout the states of Europe and America, which are blessed with free institutions, woman holds at this time a higher intellectual position, and has a greater respect paid to her faculties and her person, than at any previous period through which the world has passed.

Bravely, too, has woman vindicated her claim to these prerogatives. To say nothing of mere writers of fiction, we have in England a Mary Somerville, who handles with consummate ability the grandest and most important of the physical sciences. * * * Neither is America backward in according to woman the freedom for mind, and respect to her talents, which justly are her due, nor far behind us in the quality and capacity of genius which the sex develop. We have been led to these remarks, because in the book before us (which is by an American lady) we have an instance of a woman undertaking to discuss a subject that has perplexed and baffled the ingenuity of the most distinguished anatomists and physiologists who have considered it, from Harvey down to Paxton; and what is more remarkable, so acquitting herself as to show that she apprehended as forcibly as the best of them the difficulties which beset the inquiry, perceived as quickly as they did the errors and incongruities of the theories of previous writers; and, lastly, herself propounding an hypothesis to account for the circulation of the blood, and, according to her ideas, the *consequent* action of the heart, equally novel and ingenious, bearing upon its face a strong similitude of truth, and certainly eminently entitled to the serious attention and examination, by the test of experiment, of all who profess or take an interest in physiological science.

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